

Depreciation of Fixed Assets Notes

Overview of Depreciation

Depreciation allocates the cost of a tangible fixed asset over its estimated useful life, reflecting the asset's consumption or decline in value. It is a non-cash expense that matches the cost of the asset to the revenues it generates, adhering to the matching principle in accounting.

Purpose of Depreciation

- To allocate the cost of fixed assets systematically over their useful lives.
- To prevent overstating assets and income on financial statements.
- To provide accurate financial reporting for stakeholders.

Depreciation Expense Journal Entry

Regardless of the depreciation method used, the journal entry to record depreciation expense is consistent:

Dr Depreciation Expense	XXX
Cr Accumulated Depreciation	XXX

Accumulated Depreciation

Accumulated Depreciation is a contra-asset account that accumulates the total depreciation expense recognized over the life of an asset. It reduces the carrying value (book value) of the asset on the balance sheet.

Information Required for Depreciation

To calculate depreciation, the following information is needed:

- **Cost of the Asset:** The original acquisition cost, including any costs to prepare the asset for use (e.g., installation, shipping).
- **Estimated Useful Life:** The period over which the asset is expected to be used, expressed in years, hours, or units of production.
- **Salvage Value:** The estimated residual value of the asset at the end of its useful life.
- **Depreciable Amount:** The cost of the asset minus its salvage value.

Depreciation Methods

The following are common depreciation methods used for financial reporting:

1. Straight-Line Method

- Allocates an equal amount of depreciation expense each year over the asset's useful life.
- Formula:
$$\text{Annual Depreciation} = (\text{Cost} - \text{Salvage Value}) \div \text{Estimated Useful Life}$$
- Best suited for assets with consistent usage patterns.

2. Double Declining Balance (DDB) Method

- An accelerated method that applies a depreciation rate double that of the straight-line method to the asset's book value each year.
- Formula:
$$\text{Annual Depreciation} = 2 \times (1 \div \text{Useful Life}) \times \text{Book Value at Beginning of Year}$$
- Ignores salvage value until the book value approaches it.

3. Sum-of-the-Years'-Digits (SYD) Method

- An accelerated method that assigns higher depreciation in earlier years.
- Formula:
$$\text{Sum of Years' Digits} = n(n + 1) \div 2$$
, where n is the useful life.
$$\text{Annual Depreciation} = (\text{Cost} - \text{Salvage Value}) \times (\text{Remaining Life} \div \text{Sum of Years' Digits})$$
- Example: For a 5-year asset, $\text{SYD} = 5(5 + 1) \div 2 = 15$. Depreciation fractions are 5/15, 4/15, 3/15, 2/15, 1/15.

4. Units of Production Method

- Allocates depreciation based on the asset's usage or output.
- Formula:
$$\text{Depreciation per Unit} = (\text{Cost} - \text{Salvage Value}) \div \text{Total Estimated Units}$$

$$\text{Annual Depreciation} = \text{Depreciation per Unit} \times \text{Units Produced in the Year}$$
- Ideal for assets whose wear is tied to production levels (e.g., machinery).

5. Group and Composite Depreciation

- Used for groups of similar assets with similar useful lives (e.g., a fleet of vehicles).
- Depreciation is calculated as a single rate for the group, simplifying accounting for multiple assets.

Choosing the Best Method

The best depreciation method is the one that most accurately matches the asset's expense recognition with the revenue it generates, aligning with the matching principle.

IFRS Depreciation Note

Under IFRS, if a fixed asset comprises significant components with different usage patterns or useful lives (e.g., an aircraft's engines and airframe), each component must be depreciated separately to reflect its unique consumption pattern.

Depreciation for Tax Purposes

In the U.S., the **Internal Revenue Service (IRS)** prescribes depreciation methods for tax purposes, which may differ from financial reporting methods. The most common method is the **Modified Accelerated Cost Recovery System (MACRS)**.

MACRS Depreciation

- MACRS is an accelerated depreciation method required for most tangible assets under U.S. tax law.
- It assigns assets to specific recovery periods (e.g., 3, 5, 7 years) based on their class.
- Uses conventions like the **half-year convention** (assumes assets are placed in service mid-year) or mid-quarter convention for tax calculations.

MACRS Example

For an asset with a 3-year recovery period under MACRS (half-year convention) and an original cost of \$90,000, the IRS provides the following depreciation percentages:

Year Percentage Depreciation Amount

1	33.33%	\$29,997
2	44.45%	\$40,005
3	14.81%	\$13,329
4	7.41%	\$6,669

Total 100.00% \$90,000

Straight-Line for Tax Purposes

The IRS allows straight-line depreciation for certain assets under MACRS, typically for assets with longer recovery periods or when elected by the taxpayer.

Impairment of Fixed Assets

Impairment occurs when the carrying value of an asset exceeds its recoverable amount, preventing overstatement of assets on the balance sheet.

Impairment under IFRS

- Compare the asset's **carrying value** to its **recoverable amount** (higher of fair value less costs to sell or value in use).
- If impaired, write down the asset to its recoverable amount.

Impairment Journal Entry

Dr Impairment Loss	XXX	
		Cr Accumulated Impairment Losses XXX

Write Down of Impaired Assets

If the book value (cost minus accumulated depreciation) exceeds the expected future cash flows, the asset is impaired and written down to its fair value.

Revaluing Property, Plant, and Equipment (PPE) under IFRS

Under IFRS, companies may revalue PPE to its fair value if it materially differs from the carrying value. Revaluation surpluses are recorded in a revaluation reserve within equity, while deficits are recognized as an expense.

Disposal of Fixed Assets

When disposing of a fixed asset, the asset's book value is removed, and any gain or loss is recognized.

Journal Entry for Disposal

Dr Cash (or other proceeds)	XXX	
Dr Accumulated Depreciation	XXX	
		Cr Asset XXX
		Cr Gain on Disposal (if proceeds > book value) XXX
		Dr Loss on Disposal (if proceeds < book value) XXX

Involuntary Disposal

Costs incurred for cleanup or removal of the old asset are added to its book value when calculating the gain or loss on disposal.

Disposal by Donation

When an asset is donated, a donation expense is recognized at the asset's fair value, and a gain or loss is recorded for the difference between fair value and book value.

Donation Journal Entry

Dr Donation Expense	XXX (Fair Value)	
Dr Loss on Donation (if fair value < book value)	XXX	
		Cr Asset XXX (Book Value)
		Cr Gain on Donation (if fair value > book value) XXX

Example Problem: Depreciation Calculation

Scenario: A company purchases a machine for \$100,000 with an estimated useful life of 5 years and a salvage value of \$10,000. Calculate the annual depreciation expense using the straight-line and double declining balance methods for the first two years.

Solution:

1. Straight-Line Method:

- Depreciable Amount = \$100,000 - \$10,000 = \$90,000
- Annual Depreciation = \$90,000 ÷ 5 = \$18,000
- Year 1: \$18,000
- Year 2: \$18,000

2. Double Declining Balance Method:

- Straight-line rate = $1 \div 5 = 20\%$
- DDB rate = $2 \times 20\% = 40\%$
- Year 1: $40\% \times \$100,000 = \$40,000$
- Year 2: $40\% \times (\$100,000 - \$40,000) = 40\% \times \$60,000 = \$24,000$

Journal Entry for Year 1 (Straight-Line):

Dr Depreciation Expense	18,000	
		Cr Accumulated Depreciation
		18,000

Additional Notes

- **Tax vs. Financial Reporting:** Differences between tax depreciation (e.g., MACRS) and financial reporting depreciation create deferred tax liabilities or assets.
- **Component Depreciation:** IFRS emphasizes component depreciation to enhance accuracy, particularly for complex assets like buildings or machinery.
- **Depreciation Policy:** Companies should disclose their depreciation methods, useful lives, and salvage value assumptions in financial statements.

Best Practices

- Select a depreciation method that reflects the asset's economic benefits.
- Regularly review useful life and salvage value estimates for accuracy.
- Ensure compliance with IRS regulations for tax depreciation to avoid penalties.